

1-1-2007

## Don't Mention the 'T' Word: Value and Validity in Testing Visual Literacy

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### Recommended Citation

Brown, Ian M. and Lockyer, Lori: Don't Mention the 'T' Word: Value and Validity in Testing Visual Literacy 2007, 7-13.

<https://ro.uow.edu.au/edupapers/918>

# Don't Mention The 'T' Word: Value And Validity In Testing Visual Literacy

Ian Brown    Lori Lockyer

## Abstract

As a result of the expanding global view of literacy an Australian research team has been exploring the concept of testing for visual literacy development. A study has been established to develop a standards referenced test to explore learning development and learning designs appropriate for multiliteracy development for secondary students. This paper will present the development of the test, the validation and the results achieved. The establishment of a test for visual literacy will evaluate, improve and provide information on student learning.

## Introduction

The complexity in education that confronts educators and students in the 21st century may be attributed to the transformation and the global nature of learning. That is, the blended nature of communication, visual, technological skills, information and knowledge required today demands that educators rethink basic principles and employ strategies which enable students to cope in this technologically rich environment. New learning designs must be developed and cater to students engaging in an increasingly globalised society (Cooper, Lockyer, Brown, Blackhall and Harper, 2005, Kellner, 2000).

There has been a move in the field of education recently to re-examine or explore the definition of literacy (Anstey, 2002; Harste, 2003; Kellner, 2000, Tyner, 1998; Unsworth, 2002; Zammit and Downes, 2002). As a result of this expanding global view of literacy an Australian research team has been exploring the concept of testing for visual literacy development. The study supports the notion that for students to function in today's society they must be literate across multiple areas. Unsworth (2001, p. 8) suggests that the "notion of literacy needs to be reconceived as a plurality of literacies". Students need to be literate in multiple modes where a combination of literacies is necessary to develop multiple literacy skills.

A study has been established to develop a standards referenced test to explore learning development and learning designs appropriate for multiliteracy development for secondary students, with a specific emphasis on the visual.

The authors describe a component of a large collaborative study, which incorporates partnerships between the University of Wollongong, Apple Computers Australia and WIN Television (Australia's largest regional television station). The study is the result of a successful competitive grant provided by the Australian Research Council.

Using a standards-referenced approach, a test was developed for seventy five Year 10 secondary school students from three schools to investigate each student's understanding of key media and visual concepts. Using a

pre and post test method, students were invited to respond to a number of key questions to test their understanding of key concepts such as the ability to critically analyse images, to respond and make meaning of media stories and to interpret or decode responses to visual cues.

Students in New South Wales schools are educated relying on an outcomes based staged syllabus (NSW Board of Studies, 2003). Assessment is linked to standards with the learning experiences focusing on outcomes. Stage 5 (14-16 year old) students are externally tested in their final year of secondary education using a standards-referenced marking approach. In a standards-referenced approach, marks awarded to a response given by a student reflect the extent to which the response addresses the question asked and the criteria developed by the marker. This approach was adopted to test the level of change, improvement, understanding (and literacy) in the visual and media areas. Stage 5 English students participated in a ten week program that immersed them in media and news related issues. The study utilised a learning design providing an "analyse-construct-deconstruct" learning environment. It is important to note that the learning design was not a lock step linear process. Students moved through the process several times throughout the unit of work being taught. That is, students analysed news media, raw footage, source documents to identify intended meanings, audience and construction techniques addressing such things as similarities, differences and bias. Students constructed, by identifying a news story and following closely the news making process- research, interviewing, filming, scripting, and editing. They were provided with feedback from teachers and field experts to assist in the scaffolding of their learning. Deconstruction involved critiquing products and discussing and engaging in the processes throughout the construction process. The emphasis of the research study was the implementation of the contextualized learning design through a staged intervention approach. It was felt that high quality student outcomes should be the result of well developed learning designs, which capture both deep knowledge and deep

understanding.

Gaining some understanding of students' learning and progress was important to evaluate the effectiveness of the learning design or educational intervention. The standards approach test was administered prior to commencing the educational intervention and as the final activity in the educational program. The test enabled the collection of information about the student's achievement in relation to the outcomes identified in the implementation of the unit of work. Teachers reviewed student responses and awarded marks in accordance with well-constructed marking guidelines validated through a rigorous process. As supported by the NSW Board of Studies recommended process, the marks awarded for each question were commensurate with the quality of the response. Responses that demonstrated more complex development and higher order achievement received greater marks than a more basic level of achievement. Marks and the marking criteria provided enabled the teachers to discriminate between different degrees of performance. Comparison between the marks achieved in the first test and those in the final test allowed for variation of achievement to be explored.

This paper outlines the process of how the standards-referenced approach was designed, the focus on outcomes, the development of the instrument, validation (including the marking guidelines/criteria), implementation, the results achieved (including the level of achievement) and the impact on learning in the area of visual literacy..

### **Background To The Study**

Currently research is being undertaken at the University of Wollongong to explore whether the implementation of teaching and learning strategies based on constructivist approaches within a technology-rich environment supports the development of critical literacies. (Cooper, Lockyer, Brown, Blackhall & Harper, 2005). The study is an ongoing investigation of student's understanding and use of key media, information, visual and technological concepts and the way technology is used and understood in classroom settings. The program, which was implemented for approximately ten weeks culminated in the creation of a digital news item on a topic collaboratively constructed by a group. This investigation is part of a large research project which explores new pedagogical frameworks as applied in an educational settings. Students were involved in reading, writing, drawing, researching, designing and using technology to achieve desired outcomes. The study aims to understand the nature of the learning processes students address in a multiliterate learning environment. As well, the study aims to examine how the tools in a technology enhanced environment develop particular literacies. Of particular

interest to this study was how students make meaning and construct knowledge. The researchers were able to draw conclusions as a result of examining critical learning outcomes and the way students integrated and utilized technology.

The study initially conducted two pilot studies with single schools using case study design. A larger study undertaken in 2006 involved three classes of secondary students from different schools. Using industry partners and external funding an investigation team explored the processes and learning outcomes realized by the students involved in the implementation of the unit.

Using syllabus requirements from the English syllabus as defined by the New South Wales Board of Studies, a program was developed which combined outcomes from the English, technology and media curriculum areas. The unit of work integrated multiliteracy concepts and digital news production. Specifically, students created a news story, constructed and deconstructed authentic news footage supplied by the industry partner and developed original news stories using technological software and hardware.

To understand what skills and knowledge students had in relation to the concepts being addressed in the unit and to gauge any changes in learning occurring as a result of the educational intervention, a multiliteracy test was developed and applied.

### **Test Design**

The test focused on a number of broad areas that the researchers had included as learning outcomes in the development of the educational intervention. These were drawn from information, visual, technological and media with a particular focus on visual literacy. A number of skills and understandings were drawn from NSW syllabus outcomes required by Stage 5 students as well as other areas identified for visual literacy development. Critical skills included the ability to analyse, infer, describe, interpret, explain, justify, recognize, discern, identify, provide opinions, predict, construct, deconstruct, contrast, respond, visualize, encode and decode.

The test was embedded in the technology enhanced environment where students had access to a web environment and were required to complete the activity on-line. The test used authentic news images and stories, recently shot footage and stills using topics that the students would be familiar with. For example, there had been recent racial unrest in Southern Sydney referred to by the media as "the Cronulla riots". These events received extensive local, national and international news coverage. Images from this event were included and featured predominantly in the test. Images drawn from other international events, such as a space shuttle disaster, were also included.

Five questions, some with sub-questions, were presented to the students. All questions were supported by at least one visual cue. Students were required to provide written answers on-line through the Making News site. The test was given as the first and last experience in the unit.

### Test Validation

The test was given to the students as a pre and post test method. The test developed can be classified as criterion-referenced. According to the North Central Educational Laboratory (no date) a "criterion-referenced test is an assessment where individual's performance is compared to a specific learning objective or performance standard and not to the performance of other students". While the University of Queensland Learning and Support unit (no date) states "criterion referenced assessment is the assessment of the extent to which a student achieved the goals of a course. This assessment is carried out against previously specified yardsticks (criteria). Where a grade is assigned it is assigned on the basis of a standard the student has achieved on each of the criteria".

The tests were marked using an expert panel of teachers experienced in marking criterion-referenced tests. Five secondary trained teachers were selected from the English and Visual Arts disciplines that had recent experience in marking Stage 5 and 6 exams. This paper does not address the student's results but instead concentrates on the test validation process.

In keeping with the standard approach undertaken for criterion referenced tests administered in NSW, the marking team were provided with detailed marking guidelines and criteria sheet, the outcomes being assessed and the assessment criteria. As was hoped for by the researchers, the marking team after a process of rigorous educational debate and marking provided a number of recommendations and modifications for both the test and the marking criteria.

In standards-referenced marking the marks awarded to a response reflect the extent to which the responses addresses the question (NSW Board of Studies, 2002). Initially, the marking criteria allowed for numerical grades to be applied to the test. These marks ranged from 5 marks to 2 marks for each question or sub-question. The expert panel recommended that a rating scale of High (H). Medium (M) or Low (L) would be more appropriate. If needed the H, M, or L scale could be converted numerically (3,2, or 1) if required for further analysis.

It was agreed that the marking guidelines were beneficial and provided additional support to the markers. These guidelines provided clues for the marker to identify lower, mid range and better responses. Table 1 provides the marking prompts or indicators used in the

marking process.

**Table 1**  
**Marking Response Indicators**

Lower range responses
○ Only listed
○ No exploration
○ Little or no reference
○ Description only
○ Neglected to compare if required
○ Simplistic response
○ Clichéd answers
○ Language clumsy
○ Little attempt at answer
Mid range responses
○ Limited exploration of topic
○ Able to identify
○ Limited reference
○ More literal approach
○ Employed description rather than interpretation
Better responses
○ High level of evaluation
○ Offered analysis
○ Able to discuss
○ Supported claims
○ Articulated ideas well
○ Able to discern
○ Acknowledges
○ Contrasts
○ Demonstrates
○ Provided information understandings
○ Contextualised
○ Conceptualised
○ Gave holistic account
○ Explained connections
○ Recognized context

Advice was provided by the expert panel in relation to the question construction. For example, Question Two provided the students with two headlines: "Valiant Crew Lost in Shuttle Disaster" and "Iraqi's Call Shuttle God's Vengeance". Students were asked to answer the following question: *What do you notice about these headings?* It was anticipated that students would be able to interpret and draw conclusions about the meaning of the headings. In fact, the answers varied so dramatically that the question became void. For example, one student scored a perfect score with the answer: *"They both have six words in them"*. On advice from the expert panel a number of questions have been modified to avoid ambiguity, confusion and improve validity.

The following table (Table 2) outlines the validated test. It includes the skills and processes tested, the questions asked, the assessment criteria and the marking guidelines for each question.

**Table 2**  
**The Visual Literacy Test**

**Part One**

**Area assessed:** Critical analysis and inference.

**Figure 1**

Source: [www.cbsnews.com](http://www.cbsnews.com) Dec 14 2005 (accessed 7 March 2006)



**Question 1**

*This image was taken from an American online news site CBS a few days after the Cronulla riots.*

*1. Describe the image and tell us why you think it was used for the news report?*

**Assessment/Marking criteria:**

The answer will be assessed on how well the students:

- describe the image presented
- infer and analyse the reasons the image was chosen to support the news article

**Part Two**

**Area assessed:** Understanding how the public world is reflected.

**Figure 2**

Source: AP/Tyler Morning Telegraph Feb 1, 2003 (accessed 7 March 2006)



**Question 2**

*Days after the space shuttle Columbia disintegrated, killing all seven astronauts on board in February 2003, two news reports were released.*

*CNN, an American news provider released a story with the heading: "Valiant" Crew Lost in Shuttle Disaster.*

*Reuters, a company that provides global news used the heading: Iraqis Call Shuttle Disaster God's Vengeance.*

*2a. How do the headlines differ in their perspective on the space shuttle accident?*

*2b. Briefly describe what you think the two stories may be about.*

**Assessment/Marking criteria:**

The answer will be assessed on how well the students:

- recognise differences between the two headlines
- infer and predict the meaning of the headlines
- discern and identify the differences between the two headlines

### Part Three

**Area assessed:** Ability to interpret and decode and provide a response.

**Figure 3**

Source: [www.guardian.co.uk](http://www.guardian.co.uk) 12 December 2005  
(Accessed 7 March 2006 )



**Figure 4**

Source: [www.ctv.ca](http://www.ctv.ca) 14 December 2005 (Accessed 7 March 2006 )



#### Question 3

*The following two images were broadcast during the recent riots in Cronulla.*

*The first image is from an on-line news story from the United Kingdom.*

*The second from a Canadian on-line news story.*

*Although at first glance they look very similar, there are some differences. The second image has been cropped by the news department.*

*3a. How are the images different?*

*3b. If you were the news editor which one would you use and why?*

#### Assessment/Marking criteria:

The answer will be assessed on how well the students:

- interpret the differences between the two images presented
- explain their personal choice for the selection of images and their justification for the decision

### Part Four

**Area assessed:** How different technologies shape meaning.

**Figure 5**

Source: <http://news.bbc.co.uk/1/hi/health/769290.stm>  
(accessed 7 March 2006)



#### Question 4

*Girls aspire to Naomi Campbell's lithe shape. The media's obsession with painfully thin fashion models has contributed to the growth in eating disorders among young girls, according to the British Medical Association.*

*"Statistics have repeatedly shown that if you stick a beautiful skinny girl on the cover of a magazine you sell more copies."*

*4a. Television, magazines and newspapers represent body image differently from one another. Explain why?*

*4b. Give two examples of what ways could bodies be shown differently by different media sources in the future?*

#### Assessment/Marking criteria:

The answer will be assessed on how well the students:

- provide an opinion concerning how different media sources portray body images differently
- predict and interpret the ways body image could be portrayed by different media sources

## Part Five

**Area assessed:** Ability to construct/deconstruct meaning and provide responses

**Figure 6**

Source: [www.washingtonpost.com](http://www.washingtonpost.com) (accessed 22 March 2006)



**Figure 7**

Source: <http://www.september11news.com/AAAfirefighters-flag-2-320.jpg>

(Accessed 20 March 2006)



## Question 5

*National flags are often used in media stories and often used for different reasons. Look at the two images using national flags (both are from on-line news stories).*

*5a. What message is being given to the viewer by Image One?*

*5b. What message is being given to the viewer by Image Two?*

*5c. Are the messages different? Why?*

### Assessment/Marking Criteria:

The answer will be assessed on how well the students:

- construct and explain meaning of the image provided (1)
- construct and explain meaning of the image provided (2)
- identify and recognise different messages derived from the images provided

### Conclusion

With the ever expanding global view of literacy it is important to explore the concept of testing for visual literacy development. A thorough validation process has enabled the development of a standards referenced test to explore learning development and learning designs appropriate for multiliteracy development for secondary students. The development of a test for visual literacy provides an opportunity for educators to evaluate, improve and provide information on student learning.

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